

REMARKS

Claims 1-4 are withdrawn as the result of a restriction requirement.

New claims 21-27 have been added.

Claims 5-27 are pending.

Objections to the Specification

The office action objected to the disclosure for various informalities. For example, the office action indicated that the word "concentrate" in line 5 of page 6 should be replaced with the word "concentration." However, it is not clear to the applicants which version of the disclosure the Examiner is referring. Applicants point out that a substitute specification was filed on June 12, 2003 in response to an office action dated March 13, 2003. Applicants respectfully request the Examiner to clarify the objections to the disclosure in view of the previously submitted substitute specification.

The paragraph beginning at page 11, line 11 of the specification (as previously amended) has been amended by changing the text of that paragraph back to the originally-filed text, which was correct.

Claim Objections

The Office action objected to various informalities in claims 8-18 and 20.

Claims 8, 9 and 11-18 have been amended in accordance with the suggestions of the office action. Thus, claims 8, 9 and 11-18 as well as dependent claims 10 and 19-20 should be allowable.

Claim Rejections under 35 U.S.C. § 112

(1) Claims 7-20 were rejected under 35 USC § 112, first paragraph.

Claims 7 and 8 have been amended in view of the comments in the office action. Thus, amended claims 7 and 8 as well as dependent claims 9-20, satisfy the requirements of 35 U.S.C. § 112, par. 1.

(2) Claims 5-20 were rejected under 35 U.S.C. § 112, second paragraph.

Claim 5 has been amended in view of the comments in the office action to clarify that the first gate insulation film is provided by applying the heat treatment, and diffusion of the implanted impurities occurs during the heat treatment to form both the first and second drain regions, which have different impurity concentrations. That subject matter was disclosed in the specification as originally filed at page 12, line 15 – page 14, line 5. Thus, amended claim 5, as well as dependent claims 6-20, satisfy the requirements of 35 U.S.C. § 112, par. 2.

Claim Rejections under 35 U.S.C. § 102

Claims 5-7 and 19 were rejected as anticipated by U.S. Patent No. 5,578,514 (Kwon et al.). As discussed below, applicant respectfully disagrees.

According to claim 5, first and second drain regions of different impurity concentrations are formed by diffusing an impurity that was previously implanted in a single implant. Furthermore, diffusion of the implanted impurities occurs during the heat treatment that provides the first gate insulation film.

Although the Kwon et al. patent discloses several regions (14, 24, 36) of the same impurity type and having different impurity concentrations, those regions are separately produced by different implantations requiring multiple steps (*see* Figs. 1 to 4 and accompanying description in the specification). The layer 14, which may be implanted within the substrate, is initially provided as shown in FIG. 1. Then the drift region 24 is formed as shown in Fig. 2, and the drain region 36 is subsequently formed in a separate implantation as shown in Fig. 4.

Claims 5-20 depend directly or indirectly from claim 5 and should be allowable for at least the same reasons as that claim.

In addition claim 7 recites that “the layer is disposed over the second drain region.” The Kwon et al. reference fails to disclose such a layer. For example, the Kwon reference shows a

drain region 36 in Fig. 4 but fails to show any layer of the first conductive type as recited in amended claim 7. Thus, claim 7 should be allowable for at least these additional reasons.

Similarly, new dependent claims 21-27 should be allowable at least for the reasons discussed above in connection with claim 5.

Claim 21 recites that the “source region is in direct contact with the substrate.” Support for this feature can be found in, for example, Fig. 4. The Kwon reference fails to disclose this feature. For example, Fig. 4 of the Kwon et al. reference shows layer 28 formed between source region 34 and substrate 12. In other words, the source region is not “in direct contact with the substrate” as recited in claim 21. Thus, claim 21 is not taught or suggested by the Kwon et al. reference for at least those additional reasons.

Claims 22 and 23 recite that the “the layer of the first conductive type is formed after formation of the third drain region.” Support for this feature can be found, for example, in Fig. 4. The Kwon et al. reference fails to disclose this feature. For example, Fig. 4 of the Kwon et al. reference shows the formation of drain region 36 but fails to show the formation of any further layers. That is, the Kwon et al. reference fails to show a formation of a layer of the first conductive type “after formation of the third drain region” as recited in claim 22 (and 23). Thus, claim 22 (and 23) is not taught or suggested by the Kwon et al. reference for at least those additional reasons.

Claims 24 and 25 recite that the “the layer of the first conductive type is formed through the second gate insulation film.” Support for this feature can be found in, for example, Fig. 4. The Kwon et al. reference fails to disclose this feature. For example, Fig. 4 of the Kwon et al. reference shows the formation of films 26, 27 and 30, but fails to disclose a layer of the first conductive type is that is “formed through the second gate insulation film” as recited in claim 24 (and 25). Thus, claim 24 (and 25) is not taught or suggested by the Kwon et al. reference for at least those additional reasons.

Claims 26 and 27 recite that the “the layer of the first conductive type has a higher impurity concentration than the first or second drain regions and a lower impurity concentration

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than the third drain region.” Support for this feature can be found, for example, in Fig. 6. The Kwon et al. reference fails to disclose this feature. For example, Fig. 4 of the Kwon et al. reference shows a first drain region 24 and a second drain region 36 but fails to show a layer as recited in claim layer 26. Thus, claim 26 (and 27) is not taught or suggested by the Kwon et al. reference for at least those additional reasons.

In view of the foregoing remarks, applicant respectfully requests withdrawal of the objections and rejections. Enclosed is a check for excess claim fees and for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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